



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
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D205-634-041
Job Sheet 202459



Part No: D205-634-041

Job Qty: 1 pcs

Part Name: Replacement Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 10/28/19

Job Tracking No:

Due Date: 11/29/19

Created By: Marie Lajeunesse

Type: Stock

Description: SIOP

Note: DWG D2580 REV H SHEETS 1,2,3,8 IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD IPP Rev. O 06.02.28 Added paperwork EC IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003 DD ver:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC IPP REV:S 17.12.08 REMOVE GASKET AS PER INTUITIVE INFO DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
110	Skidtubes - Bend - 1	1 pcs		11/29/19	0.00	0.65	Skidtubes - Bend		MGA
120	Skidtubes - 2 - B4B	1 pcs		11/29/19	0.00	2.89	Skidtubes - 1 - B4B		
							Skidtubes - 2 - B4B		
							Skidtubes - 3 - B4B		MGA
							Skidtubes - 4 - B4B		
							Skidtubes - 5 - B4B		
							Skidtubes - 6 - B4B		
							Skidtubes - 7 - B4B		
130	QC 5	1 pcs		11/29/19	0.00	0.00	QC 5 - 10		
							QC 5 - 12		
							QC 5 - 17		
							QC 5 - 18		BE
							QC 5 - 19		
							QC 5 - 22		
							QC 5 - 24		
							QC 5 - 3		
							QC 5 - 43		
							QC 5 - 49		
							QC 5 - 51		
							QC 5 - 58		
							QC 5 - 68		
							QC 5 - 9		
							QC 5 - 50		
							QC 5 - 30		
							QC 5 - 40		
							QC 5 - 61		
							QC 5 - 81		



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CANADA
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Container No: S228082



Part: D205-634-041

Job No: 202459

Serial No/Batch: S228082

Revision: H

Inspector:

Exp Date:

Instructions: TC STC SH96-88 Issue 3, FAA-STD SR005631

140 Skidtubes - 3 - B4B	1 pcs	11/29/19	0.00 3.00	Skidtubes - 1 - B4B	
				Skidtubes - 2 - B4B	
				Skidtubes - 3 - B4B	M/S
				Skidtubes - 4 - B4B	
				Skidtubes - 5 - B4B	BE
				Skidtubes - 6 - B4B	
				Skidtubes - 7 - B4B	
150 QC 10	1 pcs	11/29/19	0.00 0.00	QC 10 - 10	
				QC 10 - 18	
				QC 10 - 24	
				QC 10 - 43	
				QC 10 - 50	
				QC 10 - 58	
				QC 10 - 9	DAS
160 QC 5	1 pcs	11/29/19	0.00 0.00	QC 10 - 68	NOV 11 2019 68
				QC 5 - 10	9-89
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	DAS
				QC 5 - 68	NOV 11 2019 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
				QC 5 - 61	
				QC 5 - 81	
170 Handfinish - 1-1 Chemical-B4B	1 pcs	11/29/19	0.00 1.31	Handfinish - 1 - 1 - B4B	BEBA-11-11
				Handfinish - 1 - 2 - B4B	
				Handfinish - 1 - 3 - B4B	
				Handfinish - 1 - 4 - B4B	
				Handfinish - 1 - 5 - B4B	
				Handfinish - 1 - 6 - B4B	
				Handfinish - 1 - 7 - B4B	
				Handfinish - 1 - 8 - B4B	
				Handfinish - 1 - 9 - B4B	
				Handfinish - 1 - 10 - B4B	
				Handfinish - 1 - 11 - B4B	
				Handfinish - 1 - 12 - B4B	
				Handfinish - 1 - 13 - B4B	
				Handfinish - 1 - 14 - B4B	

					Handfinish - 1 - 15 - B4B	
					Handfinish - 1 - 16 - B4B	
					Handfinish - 1 - 17 - B4B	
					Handfinish - 1 - 18 - B4B	
					Handfinish - 1 - 19 - B4B	
					Handfinish - 1 - 20 - B4B	
					Handfinish - 1 - 21 - B4B	
					Handfinish - 1 - 22 - B4B	
180	Powdercoat - 1 White GI(A)-B4B	1 pcs	11/29/19	0.00 0.34	Powdercoat - 1 - B4B	
					Powdercoat - 2 - B4B	
					Powdercoat - 3 - B4B	
					Powdercoat - 4 - B4B	
190	QC 3	1 pcs	11/29/19	0.00 0.00	QC 3 - 10	
					QC 3 - 13	
					QC 3 - 15	
					QC 3 - 17	
					QC 3 - 18	
					QC 3 - 2	
					QC 3 - 28	
					QC 3 - 3	
					QC 3 - 30	
					QC 3 - 34	
					QC 3 - 36	
					QC 3 - 41	
					QC 3 - 51	
					QC 3 - 58	
					QC 3 - 59	
					QC 3 - 68	
					QC 3 - 9	
					QC 3 - 40	
					QC 3 - 19	
					QC 3 - 43	
					QC 3 - 24	
					QC 3 - 61	
					QC 3 - 81	
200	Handfinish - 4-1-Assembly-B4B	1 pcs	11/29/19	0.00 1.00	Handfinish - 4 - 1 - B4B	
					Handfinish - 4 - 10 - B4B	
					Handfinish - 4 - 11 - B4B	
					Handfinish - 4 - 12 - B4B	
					Handfinish - 4 - 13 - B4B	
					Handfinish - 4 - 14 - B4B	
					Handfinish - 4 - 15 - B4B	
					Handfinish - 4 - 2 - B4B	
					Handfinish - 4 - 3 - B4B	
					Handfinish - 4 - 4 -	

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				B4B	
				Handfinish - 4 - 5 - B4B	
				Handfinish - 4 - 6 - B4B	
				Handfinish - 4 - 7 - B4B	
				Handfinish - 4 - 8 - B4B	
				Handfinish - 4 - 9 - B4B	
210 QC 5	1 pcs	11/29/19	0.00 0.00	QC 5 - 10	
				QC 5 - 12	
				QC 5 - 17	
				QC 5 - 18	
				QC 5 - 19	
				QC 5 - 22	
				QC 5 - 24	
				QC 5 - 3	
				QC 5 - 43	
				QC 5 - 49	
				QC 5 - 51	
				QC 5 - 58	
				QC 5 - 68	NOV 13 2019 DAS 68
				QC 5 - 9	9-89
				QC 5 - 50	
				QC 5 - 30	
				QC 5 - 40	
				QC 5 - 61	
				QC 5 - 81	
220 Packaging 3-1 - Stock - B4B	1 pcs	11/29/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	DAS 78
				Packaging 3 - 25 - B4B	NOV 20 2019
				Packaging 3 - 26 - B4B	9-89
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	

				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	DAS
				Packaging 3 - 36 - B4B	21
225 DC - 1 - B4B	1	11/29/19	0.00 0.00	DC - 1 - B4B	DAS
	pcs			DC - 2 - B4B	21
230 QC 21 - FG	1	11/29/19	0.00 0.00	QC 21 - FG - 21	DAS
	pcs			QC 21 - FG - 70	21
				QC 21 - FG - 53	21

Part Op 110 - Skid tubes - 1-Bend as per program D2580.C on CNC Bender and Folio 16 2-Cut tubes as per Dwg. D2580 3- scribe
 Descriptions: batch# in aft end of tube

120 - Skid tubes - 1- Deburr ends and remove bending marks 2- Prepare tube for welding as per QSI 004

130 - QC5- Inspect part completeness to step on W/O

140 - Skid tubes 1-Weld step D2576 as per Dwg. D2580 and QSI 004 2-Grind welds on step as per Dwg D2580 3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expansion and finish with 1/2 x 18G to achieve dwg dimension. 4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web. Deburr 5-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr 6-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

150 - QC10- Inspect visual per QSI004- ground welds

160 - QC5- Inspect part completeness to step on W/O

170 - Chemical Conversion Coat per QSI005 4.1 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

180 - White Gloss (Ref: 4.3.5.1) per QSI005 4.3 Alum START TIME: 10:35 OVEN TEMPERATURE: 320°

FINISH TIME: 11:05 M211886

190 - QC3- Inspect Part Finish

200 - Assemble as per dwg - 1-Install inserts & wearplates as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates A/R Sikaflex-291 S200625 Sikaflex expire date: 20107 2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580 3-Inspect for foreign object per QSI 024 4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive A/R Sikaflex-291 S200625 Sikaflex expire date: 20107 5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: S209364

210 - QC5- Inspect part completeness to step on W/O - Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

220 - Identify and pack for shipping as per PPPD205-634-041 Location: PPP Rev:

225 - Document Control - Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG006

230 - QC21- Final Inspection - Work Order Release

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D2580-1	205 Bent Tube	1 pcs (1 ea)	110-Skid tubes - Bend - 1	S241193
D2576-3	Step (Machining Detail)	1 pcs (1 ea)	140-Skid tubes - 3 - B4B	3177095
D4202-1	Spacer	20 pcs (20 ea)	140-Skid tubes - 3 - B4B	S104047
ALS7-1032-130	Rivnut	50 Ea (50 ea)	200-Handfinish - 4-1-Assembly-B4B	S209194
AN3-5A	Bolt	2 Ea (2 ea)	200-Handfinish - 4-1-Assembly-B4B	S216385
AN3C4A	Bolt	50 Ea (50 ea)	200-Handfinish - 4-1-Assembly-B4B	S228822
D2594-1	Plug	16 pcs (16 ea)	200-Handfinish - 4-1-Assembly-B4B	S206811
D2594-3	O-Ring	16 pcs (16 ea)	200-Handfinish - 4-1-Assembly-B4B	S045937
D2855	Cap	1 pcs (1 ea)	200-Handfinish - 4-1-Assembly-B4B	S194524
D3564-11	Wearplate Aft	1 pcs (1 ea)	200-Handfinish - 4-1-Assembly-B4B	S201764
D3564-13	Wearpad Fwd	1 pcs (1 ea)	200-Handfinish - 4-1-Assembly-B4B	S207800
D3564-5	Wearplate Center	1 pcs (1 ea)	200-Handfinish - 4-1-Assembly-B4B	S208675
D3564-9	Wearplate Fwd	1 pcs (1 ea)	200-Handfinish - 4-1-Assembly-B4B	S208809
NAS1149C0332R	Washer (AN960C10L)	50 Ea (50 ea)	200-Handfinish - 4-1-Assembly-B4B	S218154
NAS1149D0332J	Washer	2 Ea (2 ea)	200-Handfinish - 4-1-Assembly-B4B	S178378

M.U. 012882

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
110-Skidtubes - Bend - 1	D2580-1	1	21	0
	D2576-3	1	70	0
140-Skidtubes - 3 - B4B	D4202-1	20	1,450	0
	ALS7-1032-130	50	1,265	0
200-Handfinish - 4-1-Assembly-B4B	AN3-5A	2	258	0
	AN3C4A	50	1,372	0
	D2594-1	16	59	0
	D2594-3	16	466	0
	D2855	1	78	0
	D3564-11	1	21	0
	D3564-13	1	24	0
	D3564-5	1	17	0
	D3564-9	1	14	0
	NAS1149C0332R	50	4,887	0
	NAS1149D0332J	2	1,124	0
Part Specifications				
Specifications could not be found.				

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ITEM	QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
1	X				D2680-041	SKIDTUBE ASSEMBLY
2		X			D2680-046	SKIDTUBE ASSEMBLY
3			X		D2680-047	SKIDTUBE ASSEMBLY
4				X	D2680-048	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2680-1-180	EXTRUSION
21			16	16	D2670	BUSHING
22	1	1	1	1	D2670-3	STEP
23			4		D2670	SPACER
24	16	16	8	8	D2684-1	PLUG
25	16	16	8	8	D2684-3	O-RING
26	1	1	1	1	D2680	206 WEB
27	1	1	1	1	D2685	AFT CAP
28	1	1	1	1	D2684-5	WEARSHOE
29	1	1	1	1	D2684-9	WEARSHOE
30	1	1	1	1	D2684-11	WEARSHOE
31	1	1	1	1	D2684-13	WEARSHOE
32	20	20	24	24	D4202-1	SPACER
33			1	1	D4402-041	WEARPLATE ASSEMBLY
34			1	1	D4402-043	WEARPLATE ASSEMBLY
35			1	1	D5001-1	FIND WEARPLATE
36			1	1	D5001-3	AFT WEARPLATE
80	50	50			AL57-1032-130 or AN57-1032-130 or AN54-1032-130 or AEL 5-1032-130	INSERT
81	50	50			AN54A	BOLT
82	2	2	2	2	AN54-5A	BOLT
83			6	6	AN4-45A	BOLT
84	50	50			NAS1140C032R	WASHER (ANNOCT01L)
85	2	2	2	2	NAS1140C032J	WASHER (ANNOCT01L)
86			6	6	M321032-4	NUT (CR M321032L4)

GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART Q81 005 4.1 PRIOR TO INSERTING D2680 WEB POWDER COAT (4114474049) GLOSS WHITE (REF 4.3.5.1) PER DART Q81 005 4.3 BLACK ANTI-SEED PAINT AS INDICATED PER DART Q81 005 4.4.
- 3) TOLERANCES ARE PER DART Q81 019 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2680-041 = 53.7 lbs
D2680-046 = 33.7 lbs
D2680-047 = 45.1 lbs
D2680-048 = 32.0 lbs
- 8) WELDING PER DART Q81 004.
- 9) INSERT D2680 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART Q81 015 BEFORE BONDING. ENSURE HOLES LINE-UP.
- 10) BOND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT817 & DT857 ONLY FOR D2680-041-046 TO LOCATE AND DRILL 20.387 HOLES FOR WEARSHOE INSERTS. INSTALL AL57-1032-130 PER SECTIONS B-3 AND F-6 (90 PLACES) AFTER FINISH. INSTALL AN54A BOLTS AND NAS1140C032R WASHERS WITH SIKAFLEX-241-291.
- 12) INSERT D2684-1 PLUG ON D2684-3 O-RING IN HOLES MARKED "P" (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2680-041-046 AND 8 PLACES FOR D2680-047-048)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2680 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 202459 H15

19-10-28

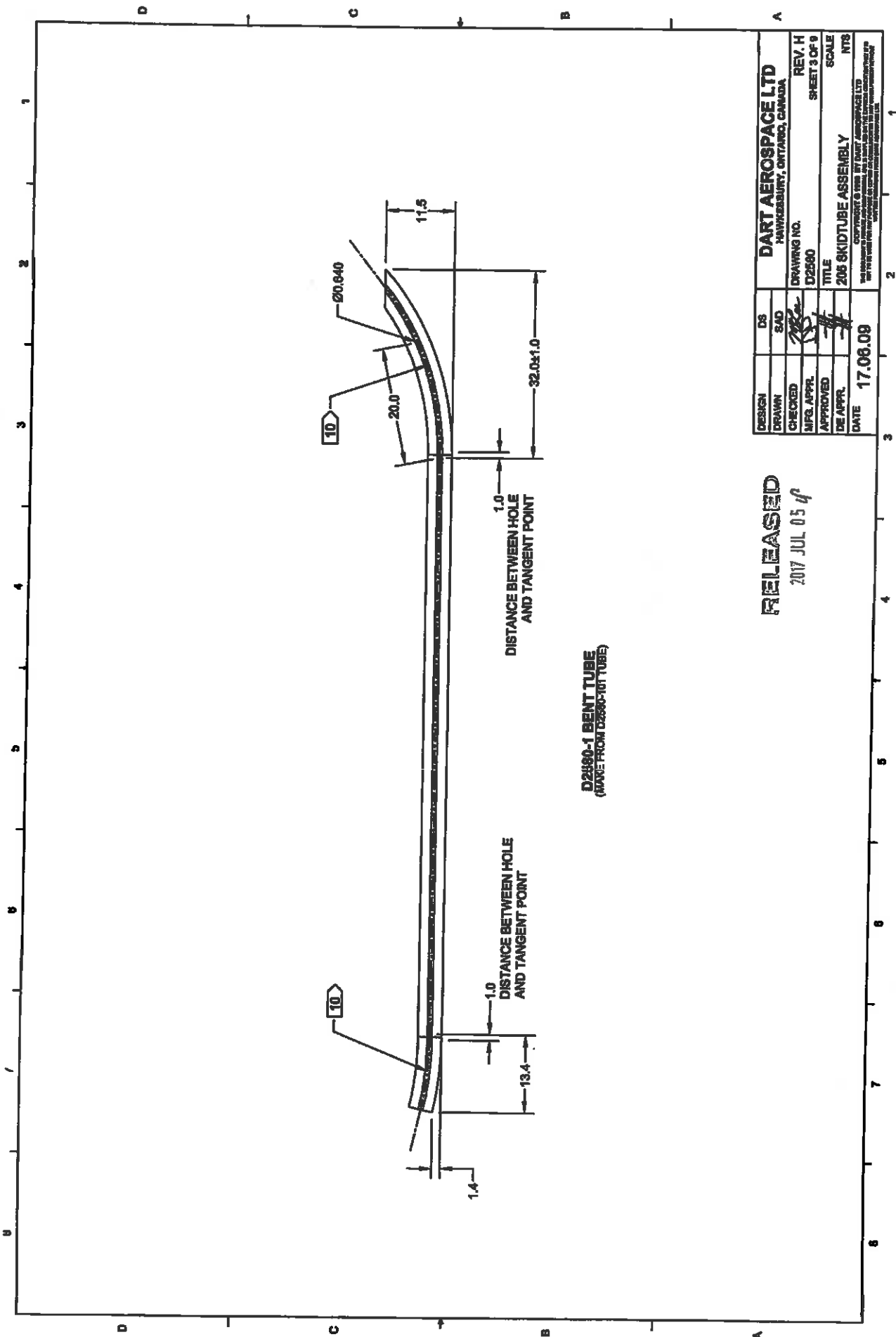
RELEASED
2017 JUL 05 14
BART-534

REV.	DESCRIPTION	DATE
DESIGN	DS	DATE
DRAWN	SAD	
CHECKED	13/2	
INPR. APPR.	D2680	REV. H
APPROVED	TITLE	SHEET 1 OF 9
DE APPR.	206 SKIDTUBE ASSEMBLY	SCALE
DATE	17.06.09	NTS

H	SHEET: PL DELETE D2680-14-13 GASKETS, WEIGHTS UPDATED ACCORDINGLY, SHEETS 2 & 4 PICTORIAL UPDATE FOR REMOVAL OF GASKETS	840	17.06.09
G	ADDED -048, -047 WEIGHT UPDATED PER DSI 6006	AJS	14.04.09
F	INCORPORATE DEO D2680-E-1 PER PAR12-970	DC	13.03.20
E	ADD D2680-047 (21 CA-7) AND D2680-7 (21 RS-5); INCLUDED DEO D2680-0-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT817 & DT857 WAS T02817-205 (21 CA-1)	RF	11.09.21
D	CHANGE TO 88 WEARPLATES AND GASKETS, INCLUDE DEO D2680-5183	PH	07.04.06
C	REDRAWN, INCLUDED DEO 90041 0097	CP	06.08.26
B	AS MANUFACTURED	DS	06.12.02
A	NEW ISSUE	DS	06.09.10

DESIGN	DS	DATE
DRAWN	SAD	
CHECKED	13/2	
INPR. APPR.	D2680	REV. H
APPROVED	TITLE	SHEET 1 OF 9
DE APPR.	206 SKIDTUBE ASSEMBLY	SCALE
DATE	17.06.09	NTS

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D2880-1 BENT TUBE
(MAKE FROM D2880-101 TUBE)

RELEASED
2017 JUL 05 *q*

DESIGN	DS	DART AEROSPACE LTD
DRAWN	SAD	HAYKESBURY, ONTARIO, CANADA
CHECKED	<i>[Signature]</i>	DRAWING NO.
INFO. APPL.	<i>[Signature]</i>	REV. H
APPROVED	<i>[Signature]</i>	SHEET 3 OF 9
DE APPR.	<i>[Signature]</i>	TITLE
DATE	17.08.09	SCALE
		NTS



RELEASED
2017 JUL 05 42

[illegible]

Entered: _____

Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____		DISPOSITION ☐ Rework ☐ Scrap ☐ Use-as-is ☐ Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality		DEPARTMENT/PROCESS		MRB (QS1042)	
Date : _____		Sequence #: _____		QTY Affected : _____			
Description Work Order Deviation		Disposition					
Root Cause ☐ Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread							
Completed By		Lead hand / Supervisor					
QC / QA Coordinator		Other/Details:					